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Growing Fuel: County Moves Forward With EcoComplex

By Dee Henry

Barry Edwards has the timeline for Catawba County's planned Regional EcoComplex and Resource Recovery Complex down pat.

"We're putting it out to bid in early December with construction planned to start in January", the Director of the County's Department of Utilities and Engineering said. "Then we're allowing nine months for the actual construction, so our summer crop next year will have a facility to go into."

One crop of canola already has been harvested and sent to Appalachian State University for research. ASU is the county's partner in the project. With a crop rotation of canola in the winter and sunflowers in the summer, ASU will conduct in-house research at the university with all crops between-now and the facility's opening, set for September 2009.

"Our objective is to have ASU in the building in September and our first crops in October. We want to use the first couple of rounds of crops to get used to the farmers and the crops themselves," Edwards said. "We have a lot to learn in the next two years."

The idea for the complex actually goes back about seven years when Edwards made a presentation concerning a possible partnership for the facility at his alma mater, N.C. State University. However, it was Dr. Dennis Grady, formerly of ASU and currently with Radford College, who approached Edwards after his presentation about a partnership.

Since that time, the project has generated excitement on all sides, Catawba County Public Services Administrator Jack Chandler said.

"Every consultant involved in this project has been excited about it, and that helps build our excitement level," Chandler said.

THE PLAN

The idea is to create a facility for research on biodiesel fuel combined with Freon recovery center. The two seemingly different functions actually are good partners as researchers can use the Freon to test the jell points of mixtures of the different percentages of the crops to the diesel fuel.

The biological portions of mixtures solidify at cooler temperatures, making a higher percentage of diesel fuel more effective during the cooler seasons, according to Edwards.

The county has received the required permit to build the facility beside the offices at the landfill. The county commissioners approved an agreement defining the responsibilities of both parties last week. ASU will put in approximately $1.4 million in funding received from the Golden Leaf Foundation, the U.S. Department of Energy, the UNC General Administration and the N.C. Biotechnology Center.

The county will foot the construction of the facility, estimated at $900,000 plus a 15 percent, or $135,000, contingency with money from its Solid Waste Enterprise Fund Post Closure Reserve Funds. The fund is given by the state to back the cost of closing a landfill as

well as its maintenance for 30 years after closing. Any corrective action needed during the closing is covered as well.

Edwards said with this money, Blackburn Landfill will last almost a century. The landfill has a 60-year life expectancy and the funds will extend that another 30 years. By using the fund, no local tax dollars will be used to design, construct or operate the facility.

The equipment for the facility, mainly storage and blending tanks, is expected to cost another $800,000, Edwards said.

A FIRST FOR NORTH CAROLINA

The facility is the first of its kind in the state, according to Edwards and Jeff Ramsdell, a professor in the Department of Technology at ASU.

N.C. State has a similar operation, Ramsdell said, but it focuses mainly on ethanol and the eastern part of the state.

"Our function is mainly in biodiesel, to help farmers and to improve the biodiesel products in the state, "he said. "We also want to analyze the effect of the emissions from different Biodiesel mixtures as well."

Jeremy Ferrell, also from ASU, will work from the facility, handling operations and outreach.

THE BENEFITS

The facility will contract with local farmers to grow crops for testing, giving that population a boost.

"That way we can test the biodiesel fuels being produced in the region," Edwards said.

Those tests will result in improvements in the quality of locally produced fuel, he added.

The facility will produce an estimated 45,000 gallons of biodiesel fuel annually after the facility is up and running, about 12 months after its opening. The estimated cost of the fuel production is $2 per gallon, a savings from the county's usual cost for diesel, about $4.59 per gallon.

Excess fuel left over after research will be used in equipment at the landfill and facility itself.

The county also expects to receive $1 per gallon in a federal Green Credit and Incentive Tax, a reward for municipalities making efforts to conserve energy and incorporate environmentally friendly operations.

The county will receive about $50,000 each year from the North Carolina White Goods Tax Program, a reimbursement to offset the cost of Freon removal and employment of people to do so. The Freon recovery center also will function as scrap metal recyclers, predicted to bring in $10,000 to the county annually, Edwards said.

DETAILS

Canola is a type of edible oil derived from rapeseed plants initially bred in Canada by Keith Downey and Baldu Stefansson in the 1970s. The word "caols" is derived from "Canada Oil, Low Acid" in 1978.

-Source: Wikipedia.org

BY THE NUMBERS

COUNTY COSTS (INITIAL)

- Architectural, engineering design and development $299,000.
- Building construction $900,000
- Mechanical/fuel delivery system $800,000

Total $1,999,000

COUNTY'S ANNUAL OPERATIONAL COSTS

- Utilities $6,500
- Manpower $25,000

Total $31, 500

ASU COSTS

- Initial (research equipment) $1,400,000
- Annual research and operational $120,000

COUNTY ANNUAL REVENUES

- ASU lease agreement $12,000
- Avoided cost of fuel savings from biodiesel production and usage.
- Biodiesel surplus from research $130,000
- Biodiesel from EcoComplex crops $70,000
- Glycerin and other biodiesel byproducts (To be determined)
- N.C. White Goods Tax Proceeds $50,000
- Increased revenue from white goods Freon Removal $10,000
- Federal road use tax reimbursement $30,000

Total $302,000

-Source: Catawba County